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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: RUMER et al.

Patent No.: 6,982,492 *B2*

Issue Date: January 3, 2006

For: NO-FLOW UNDERFILL  
COMPOSITION AND METHOD

) Group Art Unit: 2823

) Examiner: Clark, Sheila V.

) **REQUEST FOR CERTIFICATE OF  
CORRECTION**

) Attorney Docket No.: P16914

) **PTO Customer Number 28062 Certificate**  
) Buckley, Maschoff & Talwalkar LLC  
) Attorneys for Intel Corporation **JAN 30 2006**  
) Five Elm Street  
) New Canaan, CT 06840 **of Correction**

CERTIFICATE OF MAILING UNDER 37 CFR 1.8

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Dated: January 6, 2006

By: *Edith Martin*

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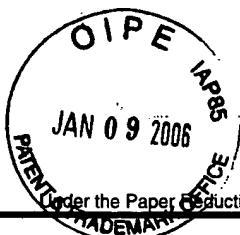
Sir:

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

01/27/2006 FFANAEIA 00000036 501852 6982492

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PTO/SB/21 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)		Patent Number	6,982,492 <b>B2</b>
		Issued Date	January 3, 2006
		First Named Inventor	Rumer, Christopher L.
		Art Unit	2823
		Examiner Name	Clark, Sheila V.
Total Number of Pages in This Submission	6	Attorney Docket Number	P16914

ENCLOSURES (Check all that apply)		
<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Request for Certificate of Correction  <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer  <input type="checkbox"/> Request for Refund  <input type="checkbox"/> CD, Number of CD(s) _____  <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance communication to (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter  <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Two (2) Certificate of Correction forms and Acknowledgement Post
<b>Remarks</b>		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Buckley, Maschoff & Talwalkar LLC		
Signature			
Printed name	Nathaniel Levin		
Date	January 6, 2006	Reg. No.	34,860

CERTIFICATE OF TRANSMISSION/MAILING			
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Signature			
Typed or printed name	Edith Martin	Date	January 6, 2006

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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JAN 31 2006

IN THE CLAIMS:

9. A system comprising:

- a die comprising an integrated circuit; and
- a chipset in communication with the integrated circuit;

wherein the die comprises a plurality of connection bumps each bonded to a respective one of a plurality of ~~[[soldier]]~~ solder bumps on a substrate, an underfill being present between the substrate and the die, the underfill being at least partially filled with filler particles, at least some of the filler particles being electrically conductive;

wherein the filler particles include non-conductive particles and conductive particles;

wherein:

the non-conductive particles constitute at least 20% and not more than 40% by volume of the composition; and

the conductive particles constitute at least 10% and not more than 20% by volume of the composition.

10. A device comprising:

- a substrate having a plurality of bumps;

~~[[an]]~~ a die having a plurality of bumps each bonded to a respective one of the bumps of the substrate; and

an underfill between the substrate and the die, the underfill being at least partially filled with filler particles;

wherein the filler particles include non-conductive particles and conductive particles;

wherein the non-conductive particles do not exceed 50% by volume of the underfill and the conductive particles do not exceed 30% by volume of the underfill.

**REMARKS**

Applicant hereby requests a Certificate of Correction to correct a typographical error. No new matter is added.

The Commissioner is hereby authorized to charge Deposit Account No. <sup>50-1852</sup>~~50-0150~~ in the amount of \$100 pursuant to 37 CFR §1.323 as set forth in §1.20(a). A duplicate copy of this sheet is enclosed.

Respectfully submitted,



January 6, 2006  
Date

Nathaniel Levin  
Registration No. 34,860  
Buckley, Maschoff & Talwalkar LLC  
Attorneys for Intel Corporation  
Five Elm Street  
New Canaan, CT 06840  
(203) 972-3460

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**PATENT NO. : 6,982,492 **B2**

DATED : January 3, 2006

INVENTOR(S) : Christopher L. Rumer, Tian-An Chen, Vijay Wakharkar and Paul A. Koning

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**9. A system comprising:**

a die comprising an integrated circuit; and

a chipset in communication with the integrated circuit;

wherein the die comprises a plurality of connection bumps each bonded to a respective one of a plurality of ~~[[soldier]] solder~~ bumps on a substrate, an underfill being present between the substrate and the die, the underfill being at least partially filled with filler particles, at least some of the filler particles being electrically conductive;

wherein the filler particles include non-conductive particles and conductive particles;

wherein:

the non-conductive particles constitute at least 20% and not more than 40% by volume of the composition; and

the conductive particles constitute at least 10% and not more than 20% by volume of the composition.

**MAILING ADDRESS OF SENDER:**

Buckley, Maschoff & Talwalkar LLC  
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New Canaan, CT 06840

PATENT NO.

6,982,492

No. of additional copies

 1 of 2

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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INVENTOR(S) : Christopher L. Rumer, Tian-An Chen, Vijay Wakharkar and Paul A. Koning

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10. A device comprising:  
a substrate having a plurality of bumps;  
[[an]] a die having a plurality of bumps each bonded to a respective one of the bumps of the substrate; and  
an underfill between the substrate and the die, the underfill being at least partially filled with filler particles;  
wherein the filler particles include non-conductive particles and conductive particles;  
wherein the non-conductive particles do not exceed 50% by volume of the underfill and the conductive particles do not exceed 30% by volume of the underfill.


## MAILING ADDRESS OF SENDER:

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PATENT NO.

6,982,492

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